

EXHIBIT 2

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Attorney Docket No. 26.0.3.235/B

In re Patent of:)
)
Richard D. Bednar)
)
Patent No. 6,336,311)
)
Issued January 8, 2002)
)
For GANG-TYPE ROTARY LAWN)
MOWER WITH REAR ROLLER)

DETAILED REQUEST FOR INTER PARTES PATENT REEXAMINATION

Mail Stop *Inter Partes* Reexam
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Pursuant to 37 CFR 1.913, The Toro Company, the real party in interest and a third party requester, hereby requests *inter partes* reexamination of U.S. Patent 6,336,311. A Request for *Inter Partes* Reexamination Transmittal Form (PTO/SB/58) is attached hereto.

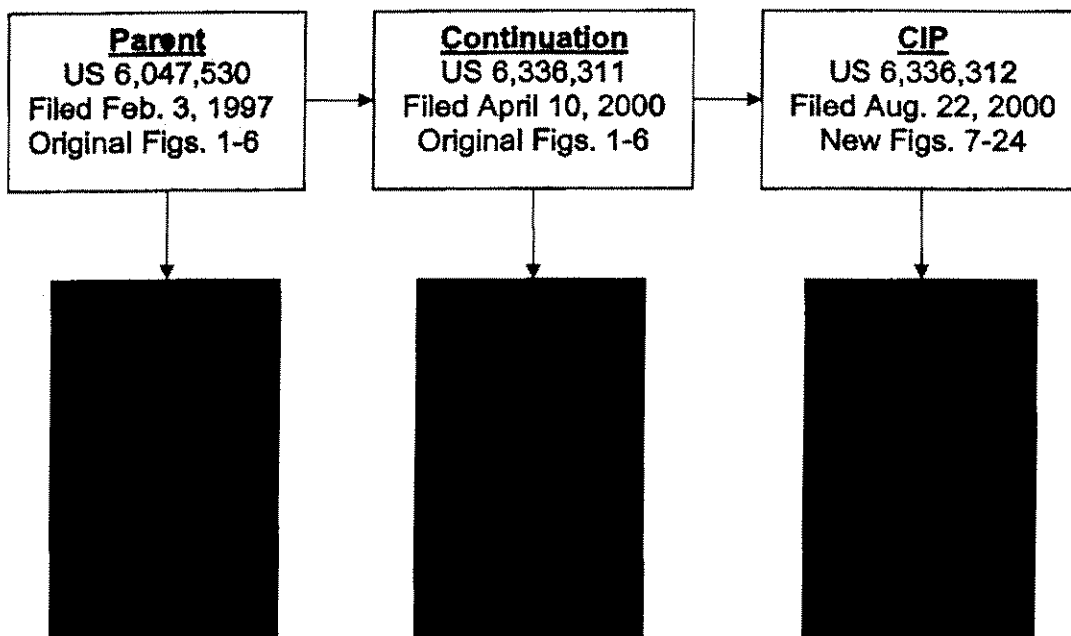
The 311 patent is currently involved in patent litigation entitled Textron Innovations Inc. v The Toro Company in the United States District Court for the District of Delaware, Civil Action No. 05-486 (GMS). A *Markman* hearing was held and the Court issued an Order Construing The Terms Of U.S. Patent Nos. 6,047,530; 6,336,311; and 6,336,312 on October 20, 2006. A copy of this Order is attached hereto. The case is currently scheduled for trial on June 25, 2007.

Toro requests that claims 1-5, 7, 8 and 10-12 of the 311 patent be reexamined. These are the same claims of the 311 patent that have been asserted against various Toro products in the above-identified litigation.

The basis for this request is the presence of substantial new questions of patentability as detailed hereafter in this Request. Toro will apply this prior art to the claims of the 311 patent in a manner consistent with the claim construction set forth in the Court's Order regarding claim construction.

Identification of Related Patents and Reexaminations

As is apparent from the three patents contained in the Title to the Court's claim construction Order, there are three patents at issue between Textron and Toro in the pending litigation. All three patents deal with a gang rotary lawn mower. **Individual Reexamination Requests of each patent are being filed simultaneously in the PTO.** The patents, Reexamination Requests, and claims in each patent for which reexamination is requested are identified in the flowchart below:



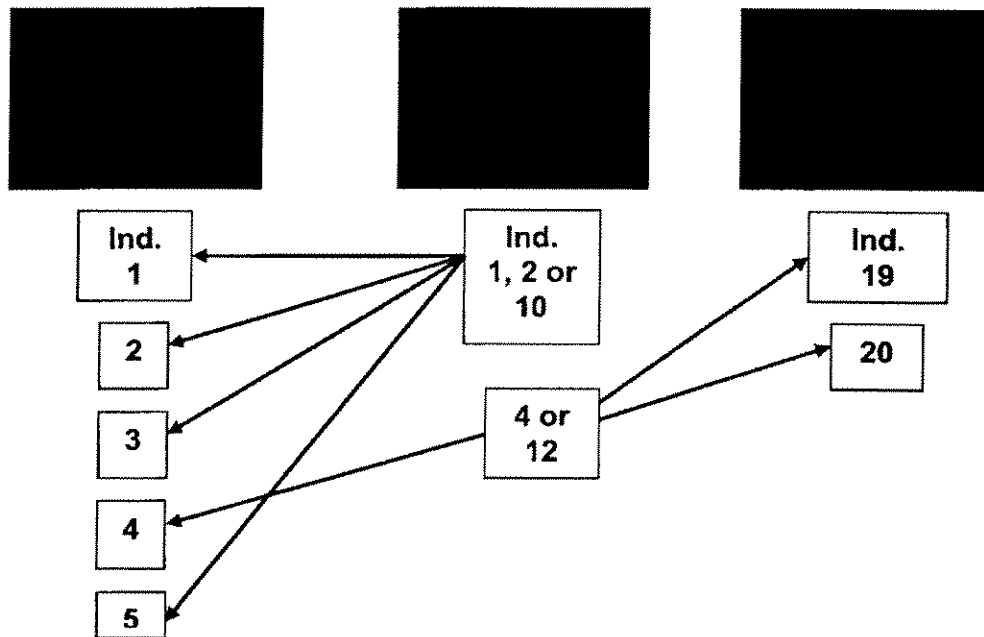
The claims at issue in the patents are all directed to gang mowers equipped with particular rotary cutting deck assemblies. The Reexamination Requests themselves will explore this art in detail in showing why substantial new questions of patentability exist with respect to those claims in each patent for which reexamination is requested. Toro is requesting reexamination of all the claims in each patent that have been asserted against it in the related litigation.

The 530 and 311 patents have identical disclosures and are related to one another as parent – continuation. As is not surprising, the claims of the 530 and 311 patents are closely related. In fact, their claims are so close that some of the

prior art that serves as the basis for unpatentability of some claims in the 311 patent **will apply with equal force to all the claims** at issue in the 530 patent.

The 312 patent has claims directed to subject matter that was newly added as of the August 22, 2000 filing date of the 312 patent. Thus, new or additional prior art combinations will be set forth in this Reexamination Request to address the different questions of patentability raised by many of the claims of the 312 patent. However, **two claims** in the 312 patent are unpatentable based on some of the same prior art combinations set forth with respect to certain similar claims in the 311 patent.

Thus, the Reexamination Request in the 311 patent serves as a useful starting point in considering the reexamination of all three patents because the art applied to certain claims in the 311 patent flows out to reach all the claims in the 530 patent and two of the claims in the 312 patent. This is graphically demonstrated in the following chart:



I do not mean to say that independent claims 1, 2 or 10 of the 311 patent have exactly the same limitations as the claims in the 530 patent to which the arrows are directed or that dependent claims 4 or 12 of the 311 patent have exactly the same limitations as claim 4 in the 530 patent or claims 19 and 20 in the 312 patent. What I am saying is that at least some of the prior art applied in the 311 Reexamination Request to reject independent claims 1, 2 or 10 and dependent claims 4 or 12 of the 311 patent has structure that meets all of the limitations or features set forth in the claims in the other two patents to which the arrows are directed.

List of Patents and Printed Publications Relied Upon In This Request

Toro will rely upon the following patents and printed publications in this Request. The patents and printed publications have been listed on the attached Form PTO 1449. The patents and printed publications will be listed in two groups below, namely Group A and Group B.

Group A is the list of patents and printed publications that are specifically referred to or discussed in some way in the body of this Request in conjunction with the substantial new questions of patentability specifically set forth in the detailed portions of this Request.

Group B is an additional list of patents and printed publications that are not specifically referenced or discussed in this Request. The Group B references are not cumulative to the Group A references. The Group B references are being provided to the PTO as they additionally support the prior art combinations made in the Request and thus may be helpful to the PTO in deciding the issues of patentability. In addition, the Group B patents and printed publications may be needed by the PTO to decide other issues that arise during the course of the reexamination or may be needed to address certain arguments that might be advanced by the patentee.

Group A
Specifically Referred to in the Request

Patents

- US 1,954,579 dated April 10, 1934 to Smith.
- US 3,611,684 dated Oct. 12, 1971 to Irgens.
- US 3,968,630 dated July 13, 1976 to Mitchell.
- US 4,926,621 dated May 22, 1990 to Torras.
- US 5,085,044 dated Feb. 4, 1992 to Freier.
- AU 11,914/70 dated Sept. 2, 1971 to Kaye.

Printed Publications

- Beaver T24 brochure, dated August 1992.
- "Cheap and Careful" article, Turf Management, dated May 1994.

- Honda brochure entitled "Honda Lawn and Garden Care", dated November 1987.
- "Improved Roller Mower Makes Debut" article, Tillage by Dowdeswell, dated Winter 1994.
- Kilworth Sovema EMHZ 72 photograph and caption, Horticulture Week, May 1996.
- Lesco brochure entitled "The Lesco 500 Fairway Mower", dated 1988.
- Lesco 500D Rotary Gang Mower photograph, The Sebring News, dated January 27, 1988.
- Middlesworth brochure, 2 pgs. identified as MDLW 05-06, showing triplex Middlesworth 72R gang flail mower on page MDLW 05, triplex Middlesworth 72RR gang rotary mower on page MDLW 05, and fiveplex Middlesworth 72R gang flail mower on page MDLW 06. This publication is undated on its face, but the date of publication has been established as the mid-1980's through the deposition testimony of Mr. Tom Middlesworth, with the relevant pages of testimony being attached hereto.
- Middlesworth Hydro-Steer brochure, 5 pgs. identified as MDLW 01-04, showing triplex Middlesworth 72RR gang rotary mower on page MDLW 04. This publication is undated on its face, but the date of publication has been established as the mid-1980's through the deposition testimony of Mr. Tom Middlesworth, with the relevant pages of testimony being attached hereto.
- Middlesworth "Operator's Manual and Parts List", showing triplex Middlesworth 72R gang flail mower on pages MDLW 24 - MDLW 44 and triplex Middlesworth 72RR gang rotary mower on pages MDLW 46 - MDLW 48. This publication is undated on its face, but the date of publication has been established at least as early as 1990 through the deposition testimony of Mr. Tom Middlesworth, with the relevant pages of testimony being attached hereto.
- Nunes brochure entitled "Nunes Rotary Mower" relating to Nunes 355 Rotary Mower, dated June 1993.
- Ransomes publication entitled "Boom Mower Model BM425 Technical Manual", dated November 1990.
- Ransomes brochure entitled "Ransomes 250", dated 1994.

- Risboro Turf brochure entitled "RTS Rotary Cutters". This publication is undated on its face, but the date of publication has been established as being at least as early as September 1995 when the brochure was distributed at the 1995 Saltex show in the United Kingdom, through the deposition testimony of Mr. David Bruce Crawford, with the relevant pages of testimony being attached hereto.
- Risboro Turf publication entitled "Rotary Cutterhead General Information", further identified as Deposition Exhibit DDX 87. This publication is not formally dated on its face but includes a date of 08/08/95 appearing on some of the latter pages thereof. However, the date of publication has been established as prior to February 3, 1996, or more than one year prior to the effective filing date of the 311 patent, through the deposition testimony of Mr. David Bruce Crawford, with the relevant pages of testimony being attached hereto.
- Wulff Spare Parts Catalogue entitled "Klippeled Reservedelsliste", 4 pgs. identified as Toro 073115-073118, dated prior to 1996, by an affidavit or declaration of Frede Sørensen, a copy of which is attached.

Group B
Additional Supporting Prior Art

Patents

- US 4,304,086 dated Dec. 8, 1981 to Stuchi.
- US 5,305,589 dated April 26, 1994 to Rodriguez et al.

Printed Publications

- "Cream of the Crop" article, Turf Management, dated April 1993.
- "Cutting A Systematic Swathe" article, The Groundsman, dated July 1993.
- "Dansk Verdensnyhed" article (translation attached), dated prior to 1996 based upon information and belief.
- "Fra graesaeder til gradig" article (translation attached), dated prior to 1996 based upon information and belief.
- "Led-delt rotorklipper" brochure (translation attached), dated prior to 1996 based upon information and belief.
- Machinery for Horticulture, Chapter 14, dated 1991.

- Mountfield Lawn Rider brochure, dated prior to 1996 based upon information and belief.
- "Rotaries Take to Golf Courses" article, Grounds Maintenance, dated January 1991.
- Simplicity Parts Manual FC Hydro Series, dated 1995.
- Toro Groundsmaster 455-D brochure, dated 1992.
- Toro Groundsmaster 580-D brochure, dated 1990.
- Turf Blazer 1260 brochure, Landscape Management, dated Feb. 1995.

Statement Pointing Out Each Substantial New Question of Patentability

The following chart sets forth the claims for which reexamination is requested and shows the substantial new questions of patentability posed by the prior art references listed atop the various columns of the chart. The references listed atop the various columns of the chart can be applied to the claims either under 35 USC 102 (as indicated by the shaded cells) or under 35 USC 103.

All of the references applied to the claims of the 311 patent, except for the Nunes 355 Rotary Mower brochure, including the references relied upon under 35 USC 103 to supply various teachings, such as the Single Spindle Teachings, the Rear Roller Teachings, the Height of Cut (HOC) Teachings and the Middlesworth 72R, are not of record in the prosecution of the 311 patent. Accordingly, they obviously raise substantial new questions of patentability.

While the Nunes 355 Rotary Mower brochure was of record in the prosecution of the 311 patent, this publication was not commented upon by the Examiner or the Applicant during the prosecution of the 311 patent or used as the basis for any rejection. Accordingly, it also establishes substantial new questions of patentability despite being of record.

In any event, the claim chart showing all the substantial new questions of patentability follows:

311 Patent Claim	Middles- worth 72RR	Risboro RTS Rotary Cutters	Nunes 355 Rotary Mower	Lesco 500D Rotary Mower	Ransomes Boom Mower	Wulff Rotary Mower
1	102	103 obvious in view of Single Spindle Teachings	103 obvious in view of Mitchell and Middles- worth 72R	103 obvious in view of Mitchell and Middles- worth 72R	103 obvious in view of Rotary Gang Teachings	103 obvious in view of Single Spindle Teachings, and obvious to mount on any gang mower, e.g. Ransomes 250 Mower

311 Patent Claim	Middles -worth 72RR	Risboro RTS Rotary Cutters	Nunes 355 Rotary Mower	Lesco 500D Rotary Mower	Ransomes Boom Mower	Wulff Rotary Mower
2		102	103 obvious in view of Rear Roller Teachings	103 obvious in view of Rear Roller Teachings	103 obvious in view of Rotary Gang Teachings	103 obvious to mount on any gang mower, e.g. Ransomes 250 Mower
3		102	103	103		103
4		103 obvious in view of HOC Teachings	103 further obvious in view of HOC Teachings	103 further obvious in view of HOC Teachings	103 further obvious in view of Smith / Irgens	103 further obvious in view of HOC Teachings
5		102	103	103	103 obvious to use hydraulic motor	103
7		102	103	103	103	103
8		102	103	103	103	103
10		102	103 obvious in view of Rear Roller Teachings	103 obvious in view of Rear Roller Teachings	103 obvious in view of Rotary Gang Teachings	103 obvious to mount on any gang mower, e.g. Ransomes 250 Mower
11		102	103	103	103	103
12		103 obvious in view of HOC Teachings	103 further obvious in view of HOC Teachings	103 further obvious in view of HOC Teachings	103 further obvious in view of Smith / Irgens	103 further obvious in view of HOC Teachings

**Detailed Explanation of the Pertinency and Manner of Applying the
Patents and Printed Publications to Every Claim for Which Reexamination
Is Requested**

General Background

The most common mowers for cutting grass are the reel mower and the rotary mower. This has been true for a very long time – for most of the twentieth century until the present. As a result, the characteristics, features, capabilities, and problems faced by both such mowers are very well known to those of ordinary skill in the art. This reexamination can be properly decided only if the PTO has some background familiarity with what was known in the mower art at the time the invention at issue in the 311 patent was made. The 311 patent relates to a rotary mower having a plurality of rotary cutting units arranged in a gang configuration.

Rotary and reel mowers cut grass in different ways but at heart they both cut grass. In a rotary mower, a horizontally disposed cutting blade having sharpened cutting edges rotates about a substantially vertical axis so that the blade itself is rotated within a horizontal cutting plane. As the blade rotates, the sharpened edges of the blade impact the standing stalks of grass to cut the grass through an impact action. In a reel mower, a horizontally disposed, cylindrical reel having a plurality of helical blades rotates about a substantially horizontal axis. As the reel rotates, the blades of the reel sweep or push the stalks of standing grass against a sharpened bedknife to shear the grass against the bedknife.

Background Relating to Gang Mower Configurations

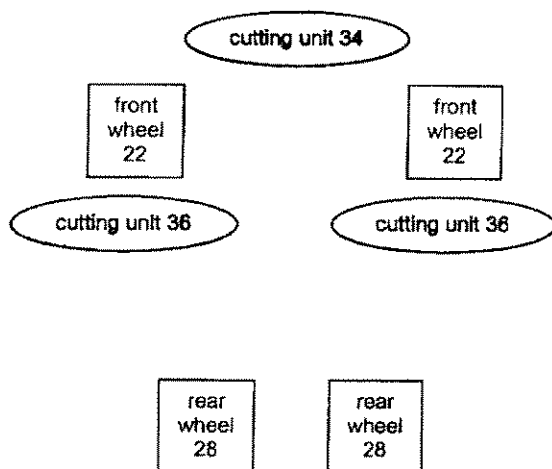
It was realized early on that a single mower, whether it was a reel mower or a rotary mower, could mow only a relatively narrow swath of grass dependent upon the width of the mower. Accordingly, the art soon realized that much wider swaths of grass could be more quickly and productively cut if a plurality of individual mowers were "ganged" together in some type of spaced but overlapping configuration. The rotary mower in the 311 patent is just such a gang mower.

In the course of developing gang mowers, again whether or not the individual cutting units were rotary mowers or reel mowers, certain standard gang configurations became known. At least some claims of the 311 patent are directed to a particular well known gang configuration. However, the mower art is well aware of other gang configurations and how one would change or modify one gang configuration to arrive at another. Thus, to assist the PTO as it considers the particular gang configuration set forth in the 311 patent, a brief

background review of different gang configurations will be set forth in conjunction with the following diagrams that I prepared to illustrate the point.

Let's begin our review of gang mowers by looking at U.S. Patent 3,968,630 to Mitchell. Mitchell is assigned to a predecessor corporation, Ransomes, Sims & Jeffries Limited, of the corporation that is listed as the assignee on the face of the 311 patent, namely Ransomes America Corporation, which is a subsidiary of Textron. The plaintiff in the above-identified patent litigation, namely Textron Innovations Inc., is a holding company established by the parent company, Textron, to hold certain patents relating to the products made by its operating subsidiaries, such as Ransomes America. Essentially, the Mitchell patent is a 1976 showing of a gang reel mower by the company that ultimately patented the gang rotary mower shown in the 311 patent. The Mitchell patent was not disclosed by Ransomes to the PTO during the prosecution of the 311 patent.

In Mitchell, a gang reel mower is disclosed in which three reel cutting units, not rotary cutting units, are attached to a riding vehicle. In the Mitchell patent, a single center front cutting unit 34 is arranged ahead of a pair of front traction wheels 22. Two laterally spaced rear cutting units 36 are arranged behind the front cutting unit 34 between the front traction wheels 22 and a pair of rear wheels 28. Thus, if I were to diagram this arrangement, it would look like this:

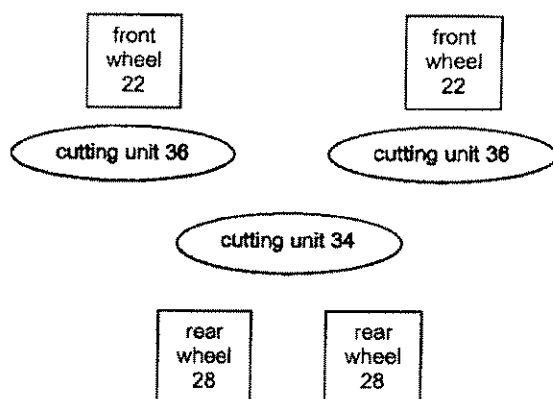


This is the gang configuration shown in the drawings of the Mitchell patent. See Figs. 1 and 2 of Mitchell.

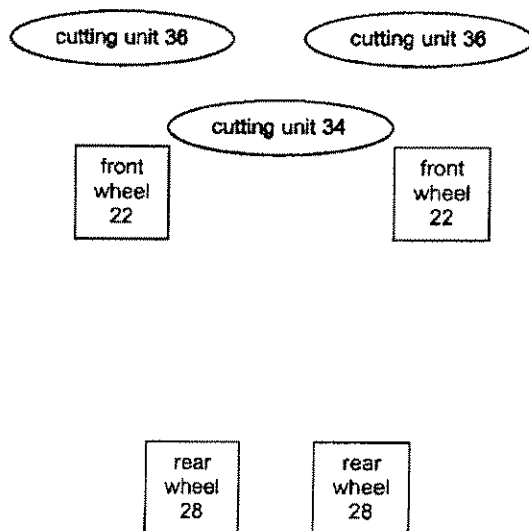
Like most others in the mower art, Mitchell knew that the cutting units could be arranged in different configurations and still be "ganged" together with the gaps between pairs of laterally spaced cutting units being covered by cutting units arranged either in front of or behind the gaps. Mitchell expressly teaches three alternate gang configurations at Col. 4, Line 64 – Col. 5, Line 5, in the following passage:

"In the accompanying drawings, the lateral cutting units 36 are shown disposed rearwardly of the front ground engaging wheels 22 with the central cutting unit 34 extending forwardly of these wheels. However the relative dispositions can be reversed, that is to say the lateral units could be provided forwardly of the central unit, all the three units being behind or in front of the ground engaging wheels 22, or only the lateral units being forwardly of the wheels 22 and the central unit being rearwardly of those wheels."

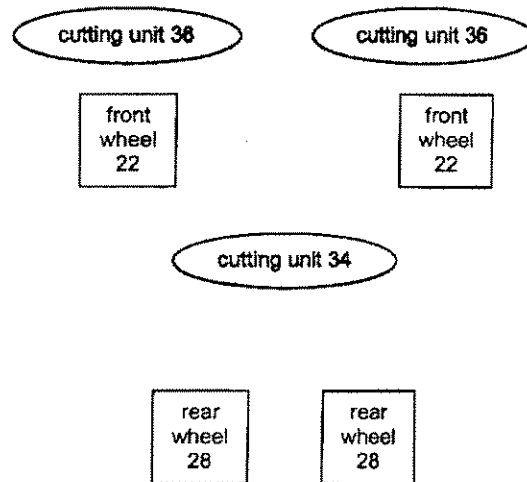
If I diagram these alternate gang configurations similarly to that shown above, they look like this:



This is the first alternate described in Mitchell, namely where "...the lateral units could be provided forwardly of the central unit, all the three units being behind the ground engaging wheels 22."



This is the second alternate described in Mitchell, namely where "... the lateral units could be provided forwardly of the central unit, all the three units being in front of the ground engaging wheels 22 ."

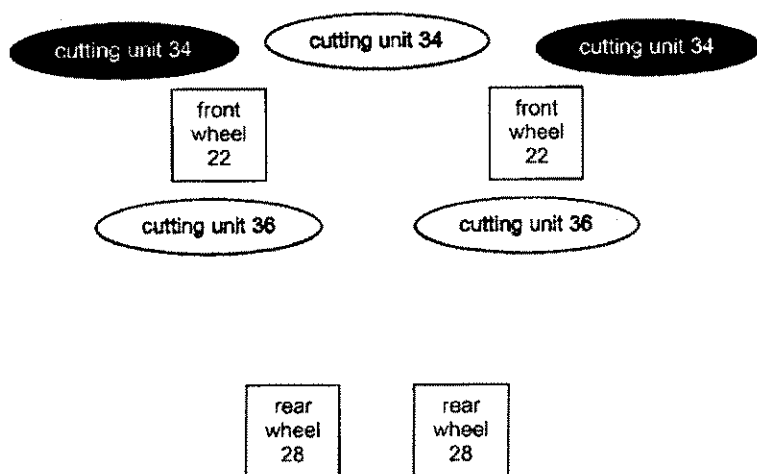


This is the third alternate described in Mitchell, namely where "... the lateral units could be provided forwardly of the central unit, ... the lateral units being forwardly of the wheels 22 and the central unit being rearwardly of those wheels."

The gang arrangement shown in the last diagram above, namely the one that is the third alternate in Mitchell, is very common today. Almost every manufacturer of mowing equipment makes and sells mowers with this type of gang arrangement. Today, a mower having this gang arrangement is often called a "triplex" in the United States or a "triple" in the United Kingdom. The cutting units in such mowers are often reel cutting units though rotary cutting units arranged in a triplex configuration are also well known as we shall see.

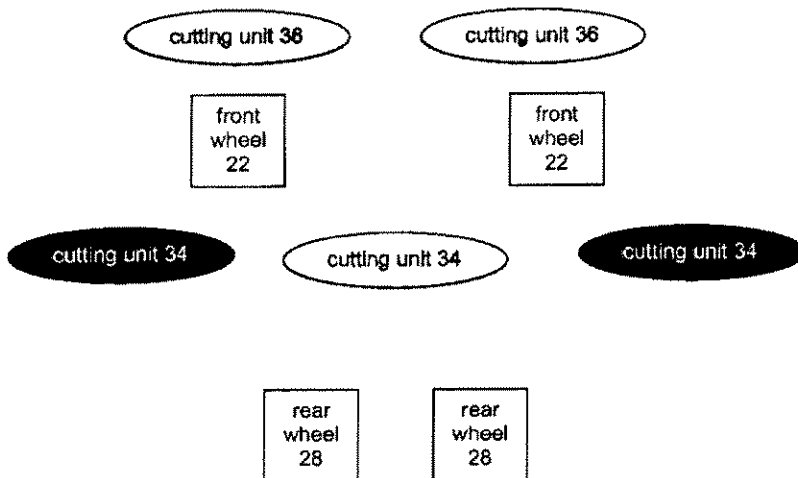
What is called a reel mower in the United States is often referred to as a cylinder mower in the United Kingdom, with the term "cylinder" being used as a synonym for "reel" just as the term "triple" is used in the UK as a synonym for "triplex". The difference between US and UK terminology is being pointed out here as it will be relevant later to understanding one of the major pieces of prior art relied upon in this Request, namely the RTS Rotary Cutters of Risboro Turf. But, as I said, more will follow about that later.

Again, in the field of mowers, it was realized long ago that if three cutting units are good in a gang mower, then five cutting units, or seven for that matter, are better since even wider swaths of grass could be cut in a single pass of the mower. The mower art did that simply by adding more cutting units to the base triplex arrangements. For example, taking the configuration shown in the drawings of the Mitchell patent and as presented in my very first diagram above, if one wanted to create a "fiveplex" out of a "triplex", one would simply add two more cutting units (shown in black) to the front row, as follows:



This is the gang configuration of cutting units shown in the 311 patent, namely three upfront units with two rear units covering the gaps. See Fig. 1 of the 311 patent.

Alternatively, another way to create a fiveplex would be to add two rear cutting units to the triplex described in the third alternate of Mitchell. Thus, such a fiveplex would look like this:



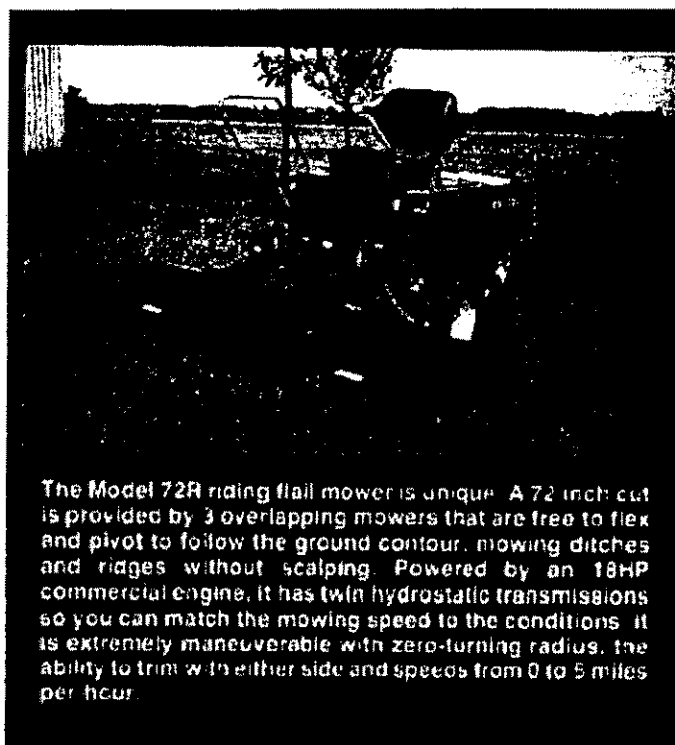
This is the gang configuration of cutting units shown in the "Nunes Rotary Mower" and the Lesco 500D Rotary Mower publications, both of which will later be applied to the 311 patent

claims.

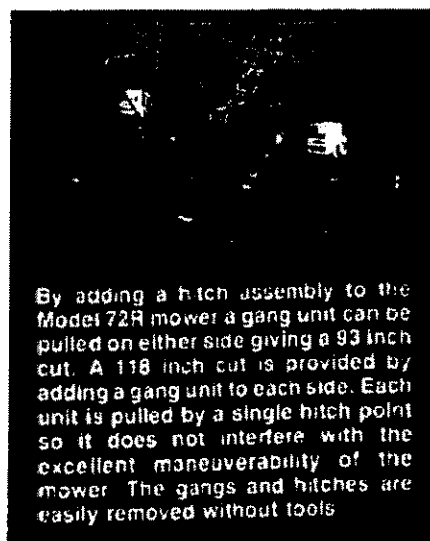
In the event the PTO feels the need for an explicit teaching of simply adding cutting units to extend a triplex to a fiveplex, the Middlesworth 72R normally had a triplex arrangement of cutting units arranged on a vehicle with two spaced front cutting units carried in advance of the front wheels and a single center rear cutting unit behind the front wheels covering the gap between the two front cutting units, ala the third alternate of Mitchell. Middlesworth is another

piece of prior art that will be applied to the claims of the 311 patent using the Middlesworth 72RR (a rotary gang mower). But, at least for now, I point to Middlesworth for its explicit teaching of making the triplex diagrammed immediately above into a fiveplex by adding two outer rear cutting units, one on either side of the center rear cutting unit.

See the following portions of the Middlesworth brochure (pages MDLW 05 and 06) that are reproduced below:



This is a triplex flail mower - note the reference to 3 overlapping mowers. The two outfront mowers or cutting units can be seen and the center rear cutting unit is hidden underneath the vehicle in this photo. (Note that a flail mower is like a reel mower having a reel that rotates about a horizontal axis, but uses a plurality of flexible flails to cut the grass by impact and does not use a bedknife to shear the grass.)



Note how the triplex flail mower is converted to a fiveplex by "adding a gang unit to each side" to extend the normal 72 inch cut to 118 inches. The added gang units are those with the white engines on the top which is how the added gang units were powered. The point I am trying to make here is that the mower art was well aware of different gang configurations and how to change or convert one gang configuration to another by adding or subtracting cutting units.

The primary use of Middlesworth will occur later in this Request when the Middlesworth 72RR (a gang version of the mower depicted above using single spindled rotary cutting deck assemblies) is applied to at least some of the claims of the 311 patent.

The Court's Claim Construction Applicable to Claim 1 of the 311 Patent

This brings me to a point that needs to be made about the Court's claim construction in the concurrent litigation. One of the limitations appearing in claim 1 of the 311 patent was construed by the Court as follows:

10. **The term "each rear deck assembly being aligned with a respective gap between adjacent front deck assemblies" is construed as "every rear deck assembly is located behind a gap defined by two adjacent front deck assemblies."**

The gang configurations claimed in the remaining claims of the 311 patent do not include the limitation construed by the Court as set forth above. In the 311 patent, this claim construction applies only to claim 1 of the 311 patent.

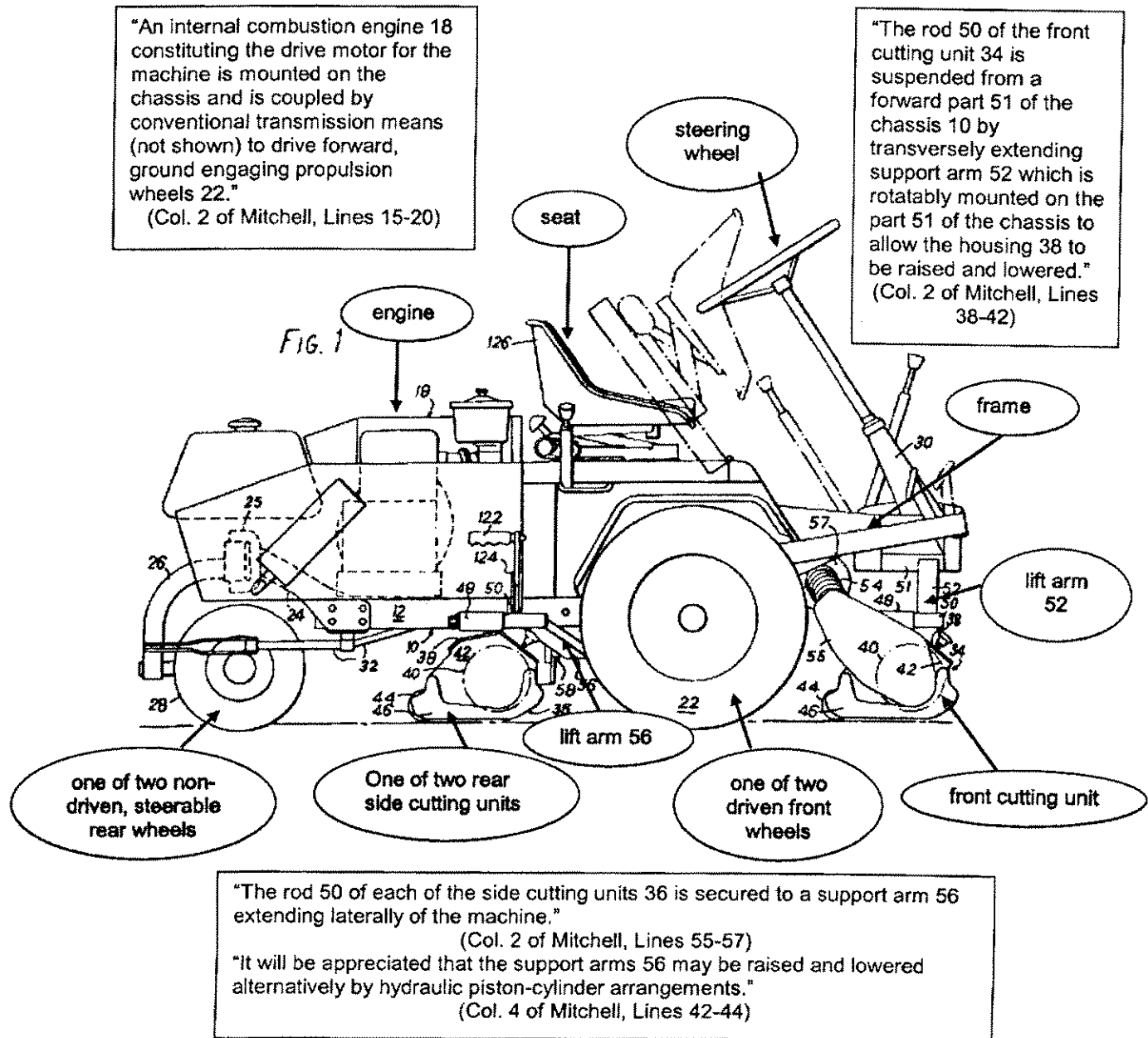
Such a claim construction would include some gang configurations, such as the basic triplex of the Middlesworth 72R, but would exclude others, such as the fiveplex configuration of the Middlesworth 72R, since the outer rear cutting units in the fiveplex configuration do not cover a gap between two adjacent front cutting units. As we will see later, this claim construction does not affect the application of the Middlesworth 72RR or the Risboro RTS Rotary Cutters to claim 1 of the 311 patent because the Middlesworth 72RR and the Risboro RTS Rotary Cutters have the same basic triplex configuration as the Middlesworth 72R - they both have a single center rear rotary cutting deck assembly that covers the gap between the adjacent two front rotary cutting deck assemblies. However, this construction does affect the application of the Nunes 355 Rotary Mower and the Lesco 500D Rotary Mower to claim 1 of the 311 patent since these are fiveplex gang configurations with two forward cutting units and three rearward cutting units (like the fiveplex version of the Middlesworth 72R). Thus, the Nunes and Lesco references will be applied to claim 1 of the 311 patent under 35 USC 103 rather than 35 USC 102 because Toro is applying the art consistent with the Court's claim construction.

Background Relating to the Mower Traction Unit and Cutting Unit Support

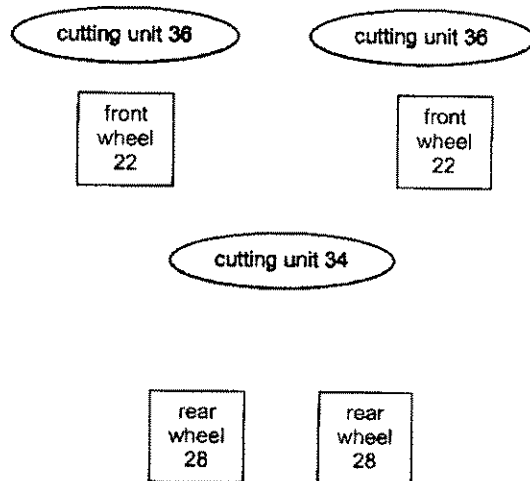
I will turn now to another topic entirely, namely the fact that mowers with a gang arrangement of independently movable cutting units almost always provide for lifting the cutting units upwardly into a raised transport position from a lowered cutting position. The cutting units are carried on individual lift arms for lifting the cutting units up and down. In addition, the vehicle which carries the cutting units

typically has a pair of front wheels that are driven by an engine carried on the frame of the mower and a pair of steerable rear wheels. An operator is carried on a seat provided on the frame of the mower and steers the mower using some type of steering mechanism, namely a steering wheel or a pair of control levers if the vehicle is a Zero Turn Radius (ZTR) vehicle.

This can be illustrated by going back again to 1976 and the Ransomes patent to Mitchell that I discussed earlier. I have reproduced Fig. 1 of Mitchell and various portions of the text of Mitchell to illustrate just how old and well known this is. I have also added shaded labels of my own to point out the parts to the PTO.



Consider again that Mitchell disclosed in his third alternate gang arrangement a gang configuration for the cutting units that looked like this:



Now, keeping this configuration in mind while looking at Fig. 1 from Mitchell as reproduced above, one quickly realizes that almost everything set forth in the independent claims of the 311 patent, and in some of the dependent claims, is simply this old, well known gang mower structure from Mitchell and many others. This can best be shown by looking at

independent claim 10 and dependent claim 11 as provided on the attached Mitchell claim chart in which Mitchell has been applied to claims 10 and 11. The same will hold true for the other independent claims of the 311 patent.

It could be argued that Mitchell is cumulative to a prior art reference of record, namely U.S. Patent 5,297,378, and this would be true. However, Mitchell is clearer than the 378 patent in depicting all the claim limitations that relate to the vehicle and certainly explicitly describes how well known different gang configurations really are and how cutting units can be easily rearranged into different gang configurations. Remember the three alternate gang configurations described in Mitchell that I diagrammed above. In addition, Mitchell is much older than the 378 patent and shows just how old and prevalent in the mower art these types of gang mowers really are and how common are most of the limitations in the 311 patent claims.

In fact, in the concurrent litigation that is copending herewith, the inventor of the 311 patent admitted that everything about the vehicle itself, namely the frame supported by front and rear wheels, the engine driving at least two of the wheels, the seat, the steering system, the lift arms, the particular fiveplex arrangement of cutting units (three outfront cutting units followed by two rear cutting units), the use of individual hydraulic motors to power the cutting units, the use of lift arms to support the cutting units for independent motion and to raise and lower the cutting units, were well known in its own Ransomes 250 Lightweight Fairway Mower. The Ransomes 250 Lightweight Fairway Mower

was not disclosed by Ransomes to the PTO during the prosecution of the 311 patent.

I have reproduced below a photograph of the Ransomes 250 taken from a Ransomes 1994 brochure showing this reel cutting unit equipped fiveplex gang mower.

RANSOMES[®] 250

L i g h t w e i g h t F a i r w a y M o w e r



Thus, Mitchell and the Ransomes 250 both help focus the patentability analysis on what, if anything, might be different in the 311 patent. As to the independent claims of the 311 patent, it is the last limitation in each independent claim concerning the use of a particular type of rotary cutting deck assembly that

represents the only difference vis a vis Mitchell or the Ransomes 250. **The work in this Request up to now only helps set the stage for what is to follow – the showing that Toro will make that such rotary cutting deck assemblies used in gang mower arrangements were well known under 35 USC 102 or would clearly been obvious under 35 USC 103 to one of ordinary skill in the art at the time the invention disclosed in the 311 patent was made.**

The Rotary Gang Mower Disclosed in the 311 Patent

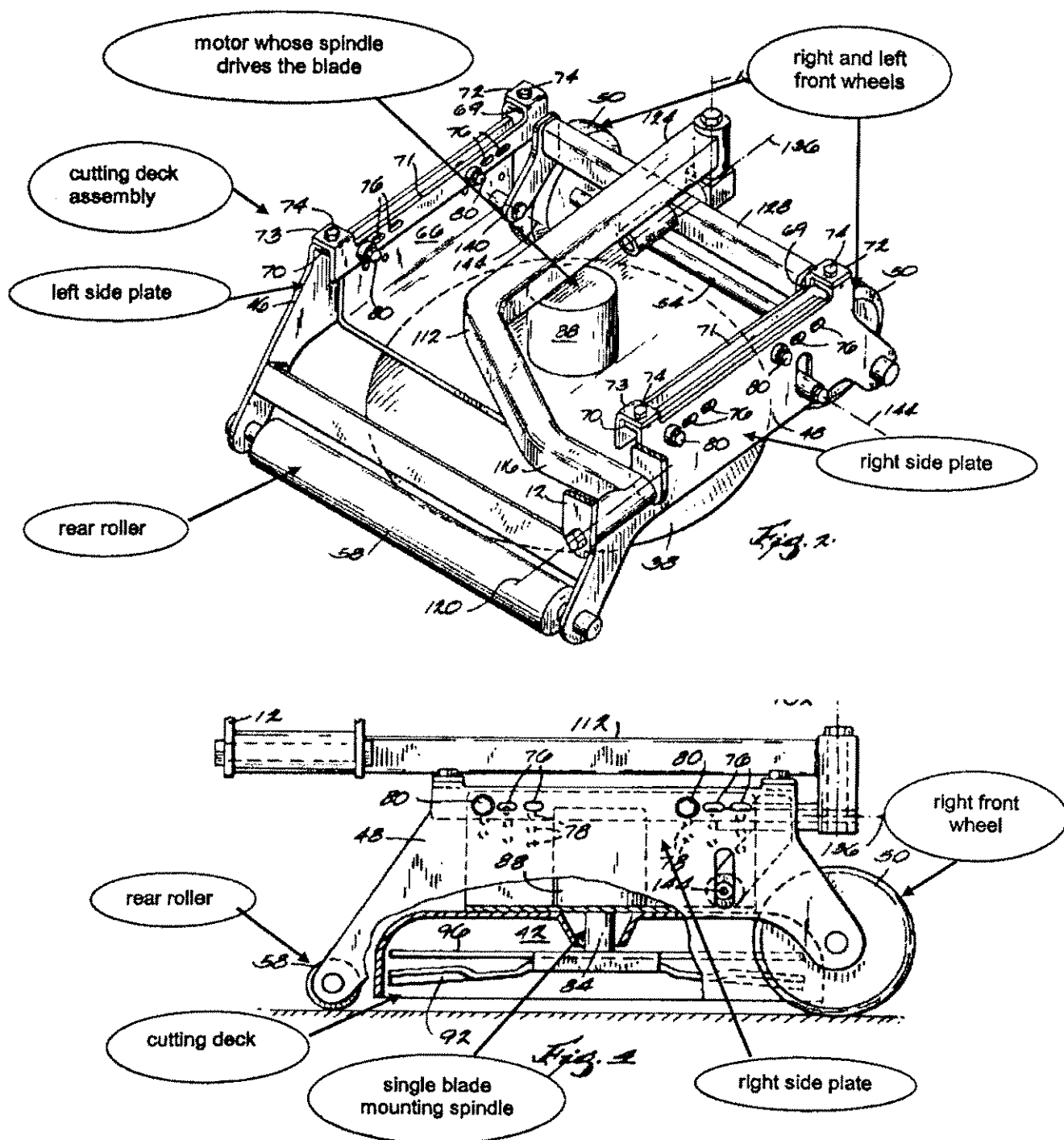
Before going on to a specific discussion of the many references that demonstrate that the claims of the 311 patent are unpatentable, a brief review of the rotary cutting deck assemblies used in the 311 patent is now appropriate. In the gang mower of the 311 patent, **each rotary cutting deck assembly has the following features:**

1. the deck is partially supported for rolling over the ground by a rear roller that extends “substantially across the entire width of said deck” (Claim 2 of the 311 patent) or that extends “substantially across the entire width of said cutting path” (Claim 10 of the 311 patent) ;

2. the height of cut is adjusted by moving the cutting deck up and down relative to a pair of side plates that carried a pair of front wheels at one end and the aforementioned rear roller at the opposite end; and

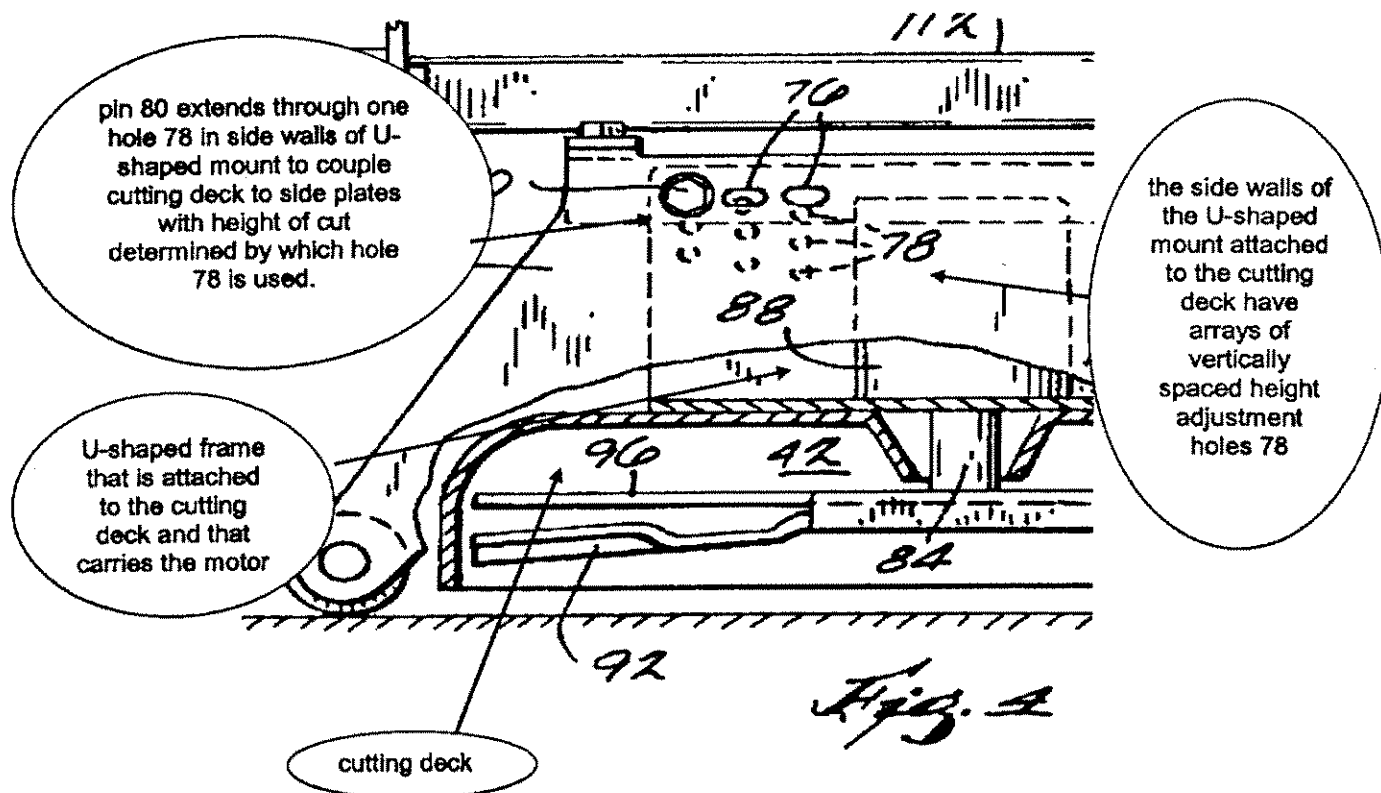
3. the deck assembly has a single spindle for mounting at least one cutting blade.

I have reproduced Figs. 2 and 4 of the 311 patent and labeled them to show the features described above.



In terms of better illustrating the height of cut adjustment on the rotary cutting deck assembly, I am enlarging and reproducing below a portion of Fig. 4 of the 311 patent. An upwardly facing U-shaped mount is attached to the cutting deck and carries the motor that drives the cutting blade. The side walls of this

mount are adjacent the side plates that carry the front wheels and the rear roller. The U-shaped mount, motor, and the cutting deck are all moved up and down as a unit relative to the side plates. A specific height can be selected by pinning the U-shaped mount to the side plates using one hole in an array of vertically spaced height adjusting holes. See the enlarged and labeled illustration below.

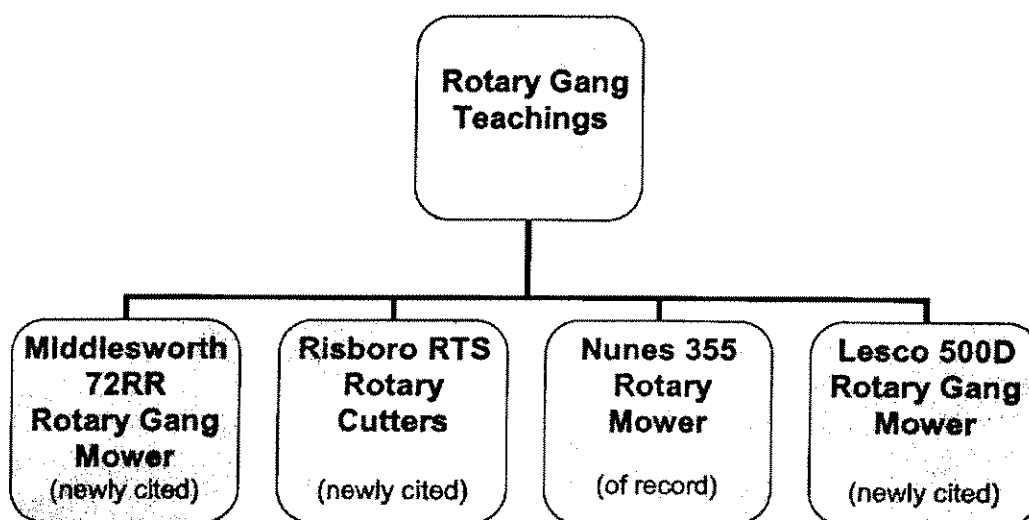


In keeping the various features of the rotary cutting deck assembly disclosed in the 311 patent in mind, it should be emphasized that the claims of the 311 patent do not require the presence of all three features together. For example, the following points should be made:

1. Independent claim 1 of the 311 patent requires a single spindled rotary cutting deck assembly, but makes no mention of a roller;
2. Independent claims 2 and 10 of the 311 patent recite the roller, but are not limited to a single spindled deck assembly; and
3. None of the independent claims recite the use of wheels to support the deck assembly, or a pair of side plates that carry the wheels at one end and the roller at the other end, or the specific height of cut adjustment disclosed in the 311 patent. That subject matter is set forth only in two dependent claims 4 and 12.

Introduction to the Rotary Gang Teachings

We will now turn to the substantial new questions of patentability that are raised by the prior art cited in this Request. There are a number of references that in and of themselves can be applied against many of the claims of the 311 patent either under 35 USC 102 or 35 USC 103. I will collectively call these references the Rotary Gang Teachings for lack of a better term. They comprise printed publications (not issued patents) disclosing the following products:



In a broad sense, the rotary gang mower disclosed in the 311 patent can be thought of as the application of rotary cutting deck assemblies to an existing triplex or fiveplex reel gang mower. In this sense, Ransomes applied particular rotary cutting deck assemblies to its own existing reel gang mower platform disclosed, for example, in its much earlier Mitchell patent or in its Fairway 250 reel mower discussed earlier.

Similarly, the above-identified Rotary Gang Teachings all basically did the same thing – they are all applications of various rotary deck assemblies to existing gang mower configurations that had earlier used reel mowers or flail mowers in the case of Middlesworth. **However, the Rotary Gang Teachings did it all earlier than Ransomes did in its 311 patent.** None of this art, with the exception of Nunes 355 Rotary Mower, was before the PTO when it examined the 311 patent and the Examiner never commented upon or applied Nunes when examining the 311 patent.

With that brief introduction, I need to beg the reader's forbearance for a bit longer before I review the Rotary Gang Teachings in detail and apply them to the claims of the 311 patent. There is one more thing I need to do first. I want to look at those features I listed above relating to the cutting deck assembly

disclosed in the 311 patent and I want to review the state of the art with respect to the individual features – to first take a look at and review some secondary or teaching references that apply to the individual features. So, before shifting to the big picture presented by the Rotary Gang Teachings, I am going to remain focused for a time on the little picture comprising the details of the rotary cutting deck assemblies at issue.

Detailed Explanation of the Rear Roller Teachings

Let's move first to item #1 in my above list of features relating to the rotary cutting deck assemblies of the 311 patent, namely:

1. the deck is partially supported for rolling over the ground by a rear roller that extends "substantially across the entire width of said deck" (Claim 2 of the 311 patent) or that extends "substantially across the entire width of said cutting path" (Claim 10 of the 311 patent).

What did the mower art know about rollers and why would one use a roller rather than wheels to support a cutting unit? This is an essential question that must be answered in addressing the patentability of most of the claims of the 311 patent.

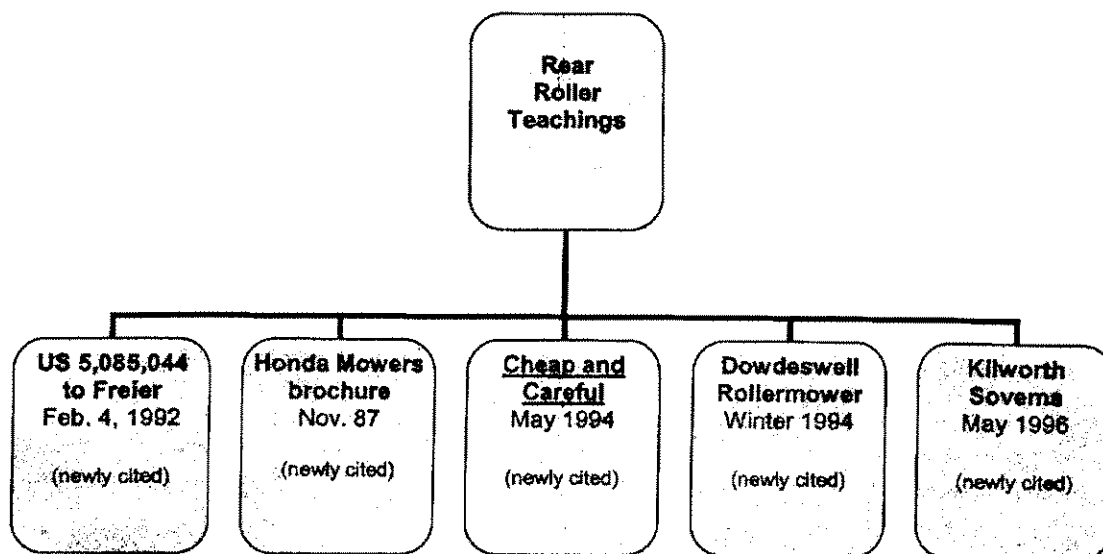
The 311 patent provides guidance as to why a rear roller was used on the rotary cutting deck assemblies shown therein. It tells what the motivation was for using a rear roller rather than a pair of spaced rear wheels. The stated guidance or motivation appears in the 311 patent at Col. 3 of the 311 patent, Lines 21-23:

"The roller 58 is behind the deck assembly 38 and extends across substantially the entire width of the deck assembly 38. The roller 58 **resists scalping and stripes the grass.**" (Emphasis Added)

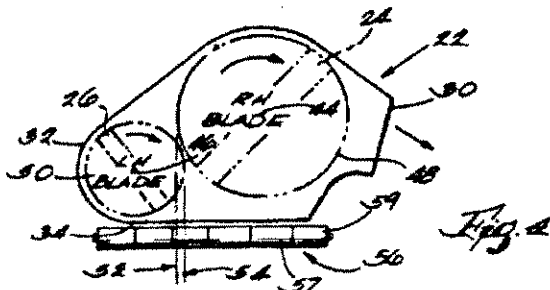
There you have it in a nutshell. Use a rear roller that extends across substantially the entire width of the deck assembly if you want to **resist scalping or stripe the grass.**

However, this was hardly news to those who worked in the mower art. Any person of ordinary skill in the art was well aware that these two desirable characteristics would result if one used a roller of the recited width. Moreover, many such teachings can be found in connection with the use of such rollers on rotary mowers as well as reel mowers.

Let's focus on a few such teachings from the rotary mower art. I am going to select a number of such teachings that I will call the Rear Roller Teachings. Those teachings comprise the following patents and or printed publications:



Looking at the teachings individually, Freier shows in Fig. 4 (reproduced below) a rotary cutting deck assembly supported for rolling over the ground by a rear roller. Freier specifically notes at Col. 3, Lines 51-57, the following regarding why such a roller is desirable:



"The full width roller bar 56, in turn, follows the exact contour of the ground over which the tractor 10 is travelling. This improves the uniformity of the final cut and avoids "scalping" or the creation of bald spots that can occur, for example, when a mower deck assembly, supported only at its corners, passes over a small raised zone or hump in the ground." (Emphasis Added)

Thus, Freier specifically and unambiguously notes the advantages of using a wide rear roller spanning across the deck assembly instead of just supporting the deck assembly at its corners as would be the case with a pair of spaced rear wheels – **the fact that such a roller avoids "scalping"**. Freier even puts the word "scalping" in quotes to emphasize this.

The Honda brochure entitled "Honda Lawn and Garden Care" shows a line of single spindled rotary mowers having different models. Some of the models had four wheels at the corners for supporting the mower. Other of the models replaced the two rear wheels of the mower with a wide rear roller spanning across the deck assembly – **this time to stripe the grass as the**

mower moves over the grass. See the following highlighted excerpts from the Honda brochure:

WITH A CHOICE OF 17 HONDA MOWERS TO CHOOSE FROM, THERE'S SOMETHING FOR EVERYONE: ~~REAR-ROLLER MODELS AND 4-WHEEL~~ PUSH MODELS OR SELF-PROPELLED, KEY-START OR PULL-START AND ALSO ROTO-STOP OR FLYWHEEL BRAKE.

THE HR173 SERIES - 17" CUTTING WIDTH.

SPECIALLY DESIGNED FOR THE SMALLER GARDEN, THESE LIGHTWEIGHT AND HIGHLY MANOEUVRABLE MOWERS HAVE REASSURINGLY LARGE WHEELS AND AN APPEALINGLY TOUGH POLYMER RESIN DECK. THE CHOICES AVAILABLE INCLUDE SUCH FEATURES AS A TOUGH, LARGE GRASS BAG, EFFECTIVE REAR-ROLLER AND A FLY WHEEL BRAKE TO ENSURE OPERATOR SAFETY.

THE HR194 SERIES - 19" CUTTING WIDTH.

THESE MOWERS ARE THE IDEAL COMPLEMENT TO A MEDIUM SIZED GARDEN. ~~THANKS TO THE MARVELOUS REAR-ROLLER THERE'S NO REASON WHY EVERY GARDEN SHOULDN'T HAVE A BEAUTIFUL STRIPED FINISH.~~

CHOOSE BETWEEN PUSH OR SELF-PROPELLED 2 SPEED MODELS AND, DEPENDING UPON YOUR INDIVIDUAL NEEDS, THERE ARE MANY EXCITING CHOICES AVAILABLE SUCH AS KEY-START, ROTO-STOP AND ADJUSTABLE HANDLES TO SUIT YOUR HEIGHT.

ALL SELF-PROPELLED MODELS IN THIS RANGE HAVE SHAFT DRIVE TRANSMISSION (VERY SIMILAR TO A CAR) WHICH REDUCES POWER LOSS, IS VIRTUALLY MAINTENANCE FREE AND MAKES THE HANDLING A DREAM. WHAT MORE COULD THE KEEN GARDENER ASK FOR IN HIS MOWER?



TAKE A TRACTOR-mounted rotary mower, add a twist to the blades, a floating top link and rollers front and rear and you've got yourself an economical mower capable of producing an even and consistent cut on both short and longer grass.

That, at least, is the theory and, although it may be not quite as straightforward in practical terms, the twin roller rotary mower, or 'roller mower', as it has come to be known, is mounting a serious challenge for territory once regarded as the sole domain of cylinder-type machines.

This impetus is due to the ~~roller mower's ability to maintain a consistent cut on uneven ground and to leave a neat, level, striped finish on areas as diverse as sportsfields, parks, golf courses, polo pitches and roadside verges.~~

Moving on to the Cheap and Careful article taken from the May 1994 issue of a magazine entitled Turf Management, various rotary mowers known as "rollermowers" were described including the Dowdeswell roller mower. In such roller mowers, the deck assemblies were often supported at both the front and the rear by wide rollers that extended substantially across the width of the deck. In any event, in describing the Dowdeswell roller mower, the article specifically notes the advantages that such roller support provides for a rotary mower.

Note the excerpt to the left from this article describing the more uniform ground support and striping that rollers provide. The article specifically states that the mower can "remain on top of the turf while accurately following ground contours", i.e. anti-scalping, and also

leaves "a neat, level and striped finish". (Emphasis Added).

Improved Roller Mower makes its debut

Dowdeswell has introduced an updated version of its acclaimed 8ft Roller Mower for producing a fine, even cut on open areas of sports, amenity and leisure grass.

Equipped with three cutting rotors in place of the previous four, the new model is able to work with even greater efficiency in thick or fine grass of up to 5in (127mm) long thanks to the improved air flow and more even spread of cut material.

Suitable for tractors from 25hp to 55hp, both the new 8ft (2.4m) and the existing 6ft (1.8m) Roller Mowers have shaft and belt drive to the horizontal cutting rotors. Turn handles enable height of cut to be adjusted quickly and easily up to a maximum of 3.5in (9cm) on the full width front and rear rollers.

In addition to varying the cutting height, the two rollers help the machine follow ground contours accurately and to overlap kerbs, paving stones and borders without damaging the blades or the surface. Further benefits of the roller rollers include their firming action on the turf, the containment of stones and other debris within the mower's confines for safer operation and an attractive striping effect.

Dowdeswell had its own publication that it distributed to its customers and the trade entitled Tillage by Dowdeswell. The Winter 1994 issue of this publication had the attached description of the Dowdeswell roller mower from Dowdeswell itself. Again, the article notes the use of wide front and rear rollers along with the advantages such rollers provide.

These advantages are specifically listed. The first is to "help the machine follow ground contours accurately and to overlap kerbs, paving stones, and borders without damaging the blades or the surface". This is the anti-scalping characteristic of using a roller rather than wheels. In addition, note the specific further benefit that is listed in the article from using rollers, namely the "attractive striping effect."

Thus, prior to the time that the 311 patent disclosed that "(t)he roller 58 resists scalping and stripes the grass", the mower art already knew this well. Other manufacturers like Dowdeswell were trumpeting this fact for their own rotary mowers. People generally in the trade knew this as well as evidenced by the Cheap and Careful article from Turf Management, an independent trade magazine that was "The Independent Voice of Greenkeepers and Groundsmen" according to its own masthead.

In fact, the Cheap and Careful article also specifically notes the rise in popularity of rotary mowers, such as the Dowdeswell roller mower, as replacements for reel mowers. Go back to the above excerpt from the Cheap and Careful article and reread the second and third paragraphs. It's right there in black and white. It says:

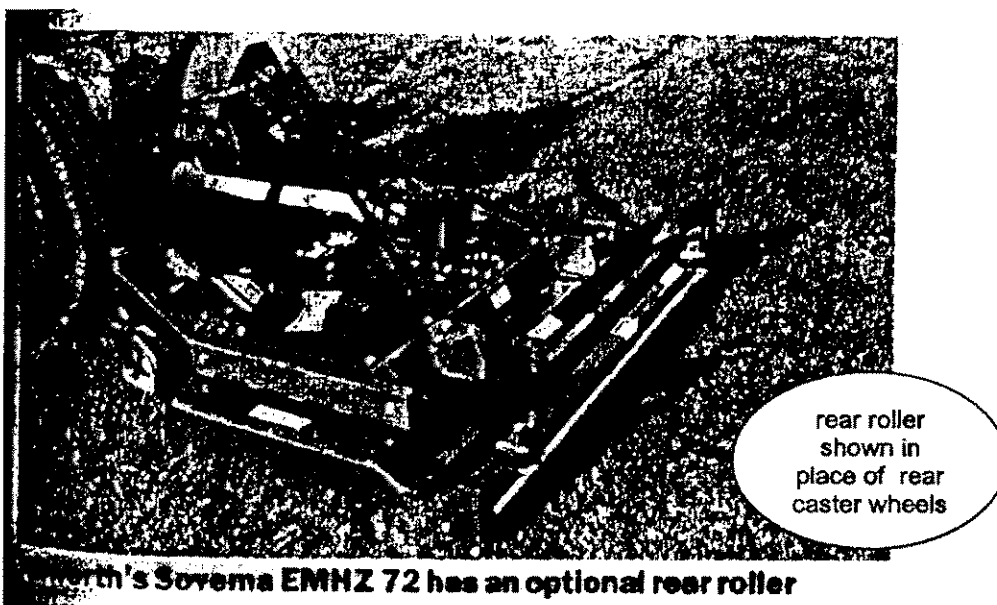
"... the twin roller rotary mower, or "roller mower" as it has come to be known, is mounting a serious challenge for territory once regarded as the sole domain for cylinder type machines.

The impetus is due to the mower's ability to remain on top of the turf while accurately following ground contours to leave a neat, level, and

striped finish on areas as diverse as sportsfields, parks, **golf courses**, polo pitches, and roadside verges." (Emphasis Added)

Moreover, the previously quoted part of the third paragraph dealing with the anti-scalping and striping properties of such mowers specifically notes that these types of rotary mowers could be used on many diverse areas, including on golf courses.

Finally, some manufacturers, such as Kilworth Sovema, actually sold an optional rear roller attachment for use on rotary mowers equipped with a set of rear caster wheels. One would take the rear caster wheels off by slipping the caster wheel spindles down out of the hubs that normally carried the caster wheels. The rear roller attachment was provided with similar spindles for allowing the rear roller attachment to then be slipped up into and held by the same hubs that normally carried the rear caster wheels. The purpose of the attachment was obviously to give the purchaser the choice of supporting the rotary cutting deck either by a pair of rear caster wheels or by a wide rear roller. See the photograph below showing the rear roller attachment for the Kilworth Sovema EMHZ 72 actually attached to the rotary cutting deck instead of the rear caster wheels.



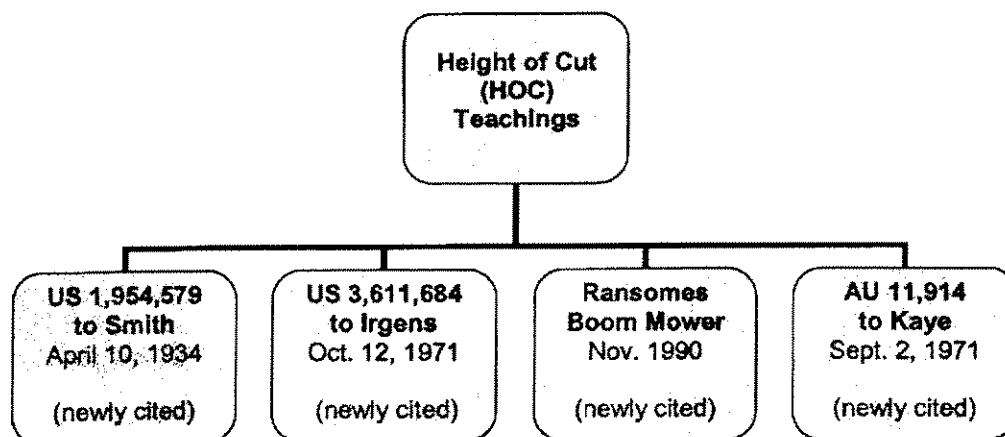
Detailed Explanation of the Height of Cut (HOC) Teachings

Moving on now to item #2 of my above list of features of the cutting deck assembly shown in the 311 patent, we come to the following:

2. the height of cut is adjusted by moving the cutting deck up and down relative to a pair of side plates that carried a pair of front wheels at one end and the aforementioned rear roller at the opposite end.

Was this a new structure of concept in the mower art? **No.** Again, it was well known and was particularly used in many of the rollermowers of the type I just described above in conjunction with the Rear Roller Teachings.

With respect to the height of cut adjustment feature shown and claimed in the 311 patent, I again have a number of teachings that I have selected and will review. The teachings are as follows:



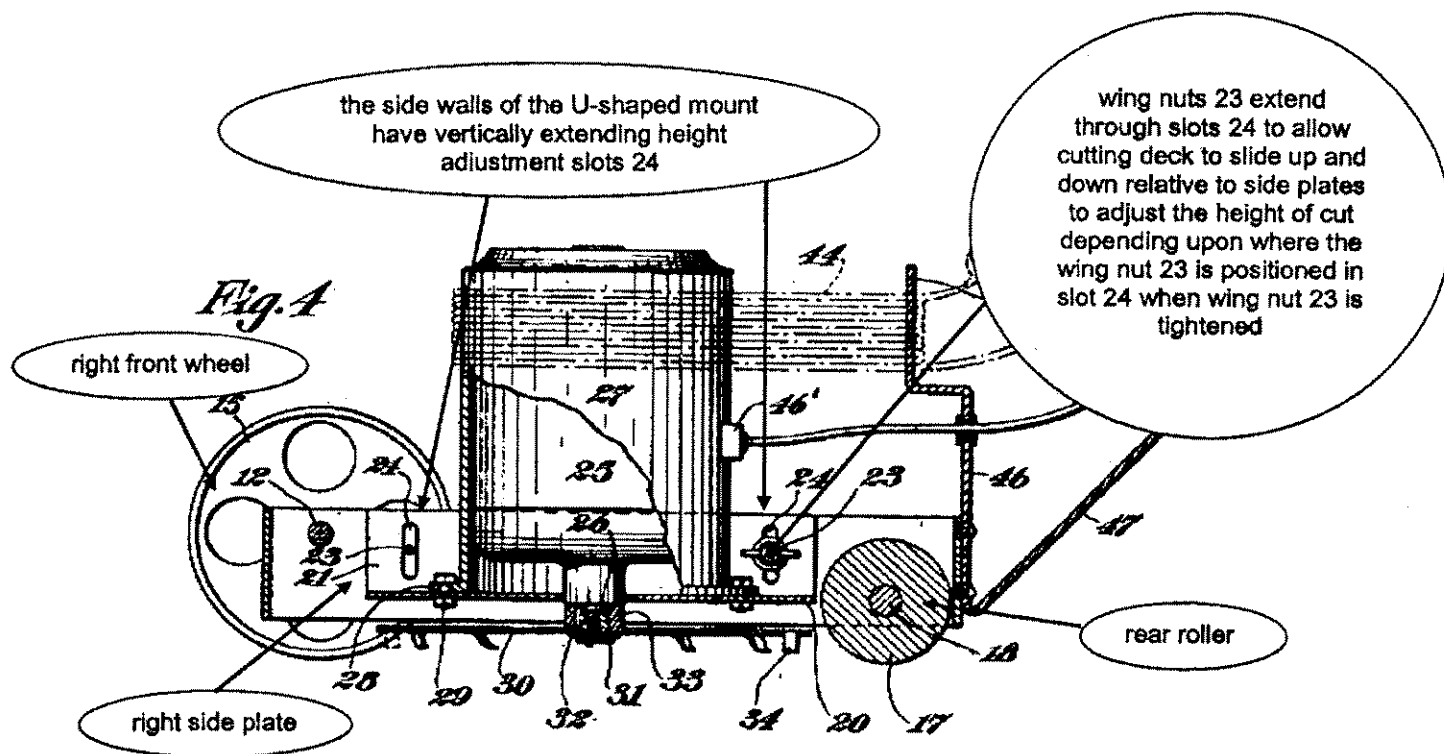
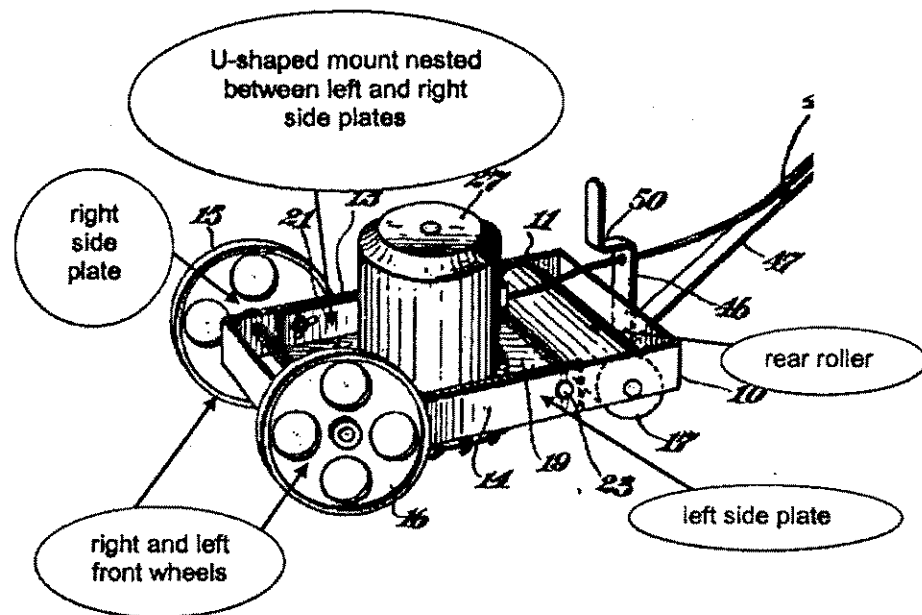
Again, let's look at these teachings individually. We'll begin with Smith. Smith bears a striking similarity to the deck assemblies in the 311 patent and their height of cut adjustment structure, including the use of front wheels on one end of a pair of side plates as well as a roller on the other end of the side plates. In addition, Smith includes a U-shaped mount that nests within and slides along the side plates to adjust the height of cut.

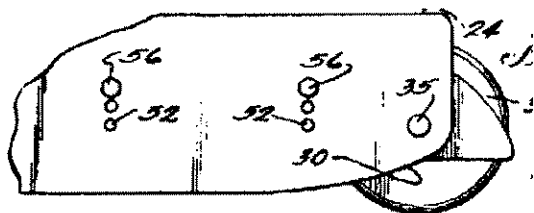
Portions of Figs. 1 and 4 of Smith are set forth below with labels appended to the figures to point out the relevant structure and operation of Smith. While Smith shows an electric motor for driving the rotary cutter, he also discloses that other motors, such as an internal combustion engine, could be used in place of the illustrated electric motor. See Page 2 of Smith, Lines 116-122.

Smith further discloses the reason or motivation for using his height of cut adjustment system – for simplicity and to provide a rugged drive connection to the blade as the motor goes up and down with the cutting deck on which the motor is carried as the height of cut is adjusted upwardly and downwardly. This is taught at Col. 1 of Smith, Lines 14 – 23, which reads as follows:

“Still featuring the desire for simplicity of construction, the disclosure features a simplified means for varying the vertically adjusted position of the cutting blade to

thus vary the distance above the ground at which the grass is severed while maintaining a short rugged driving connection with the motor or other prime mover carried by the device and the weight of which motor is utilized to provide pressure on the roller usually found in devices of this character.” (Emphasis Added)





Irgens is similar to Smith in teaching a pair of side plates that carry a pair of wheels 32 at the front end and a roller 40 at the rear end. However, instead of using continuous, elongated vertical slots 21, Irgens teaches using arrays of vertically spaced holes 52. These vertically spaced holes 52 allow the height of cut to be adjusted by using by bolts 56 extending through different ones of the holes 42 in the side plates. See the illustration from Irgens set forth above

Finally, Ransomes itself, through its Steiner subsidiary, manufactured and sold a single spindled rotary mower utilizing front and rear rollers carried between a pair of side plates. This product was known as the Ransomes 25" boom mower – it cut a single 25" swath of grass using a single rotary cutting blade.

One interesting thing about the Ransomes boom mower was its use on the end of a support arm with the mower being able to tilt and pivot to conform to radically inclined terrain, such as the sides of ditches. The attached photograph of this boom mower shows the mower actually in use cutting the side

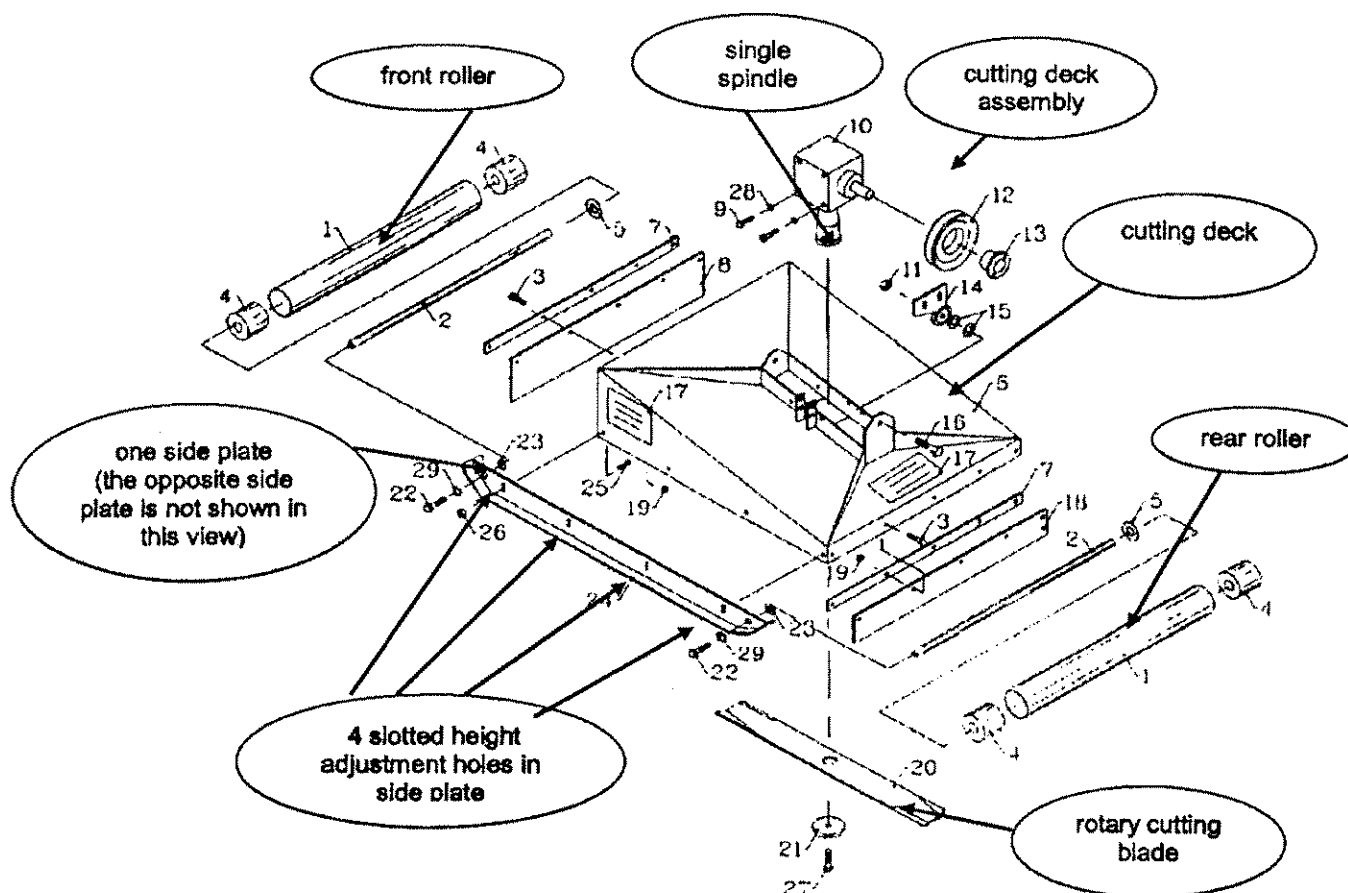


of a ditch with the mower inclined at a tilt along the side of the ditch.

This is precisely the same kind of pivoting, ground following action needed and used by the individual, single spindled, rotary cutting units used on prior known gang mowers. Thus, Ransomes had earlier invented and used a very similar cutting deck assembly on its Boom Mower to the type of deck assembly used as part of a gang mower in its 311 patent. The relevant portions of the Ransomes Boom Mower were not disclosed by Ransomes to the PTO during the prosecution of the 311 patent.

Another interesting facet of the Ransomes Boom Mower is that the height of cut adjustment method is the same as that used in and claimed in the 311 patent. The cutting deck sat or nested within a frame formed by the side plates and the front and rear rollers. To adjust the height of cut, various pins or bolts could be set at different heights in slotted holes provided in the side plates to move the cutting deck up and down relative to the side plates.

A drawing from the Ransomes Technical Manual relating to this Boom Mower is excerpted below showing this structure. I have labeled the drawing to identify the parts.



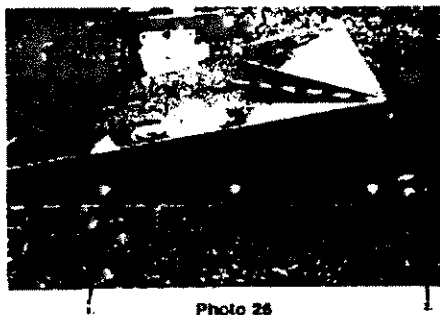


Photo 26

Cutting Height:

Mower deck roller frames have slotted holes (Photo 26, ref. 1) to permit adjustment of cutting height. Be sure roller frames (Photo 26, ref. 2) are adjusted evenly from side to side and from front to rear.

Photo 26 from the Technical Manual shows three of the adjustment bolts (in white) passing through three of the slotted holes in one of the two side plates. The fourth adjustment bolt and slotted hole is not seen in Photo 26, but would be to the left in Photo 26.

Together, the height of cut references reviewed above make a compelling case that the type of rotary mower deck assembly and how the height of cut is adjusted is also well known in the art. Indeed, the Ransomes Boom Mower shows much the same structure (except for the use of a front roller rather than a pair of front wheels on the side plates) as was disclosed and claimed for the structure and height adjustment mechanism for the cutting deck assemblies at issue in the 311 patent. Again, as noted previously, the relevant portions of the Ransomes Boom Mower had not been disclosed by Ransomes to the PTO when it was attempting to patent this structure in conjunction with the 311 patent and was not before the PTO when it issued the 311 patent.

The Australian patent to Kaye shows that similar height of cut systems were common on multi-spindled decks as well. See Fig. 3 of Kaye (the unnumbered height of cut adjustment holes carried in deck frame 5) and the second full paragraph, pg. 5 of Kaye describing the height adjustability of deck frame 5.

Detailed Explanation of Single Spindle Teachings

Turning to the last of the three items in my prior list of features for the cutting deck assemblies in the 311 patent, we come to the following:

3. the deck assembly has a single spindle for mounting at least one cutting blade.

It will be apparent that many of the references just discussed in the Height of Cut Teachings involve single spindled rotary deck assemblies. Smith, Irgens, and the Ransomes boom mower all teach using just one spindle to mount a rotary cutting disc or blade within the cutting deck assembly. Thus, collectively

any or all of these references also function to teach single spindle deck assemblies and they will be noted as teaching references in the first box of the Single Spindle Teachings chart that will follow.

In addition, many of the Gang Mower teachings also show single spindled rotary deck assemblies in a gang configuration. For example, as we will see, the Middlesworth 72RR clearly teaches a triplex arrangement of gang rotary deck assemblies with each deck assembly having a single spindle for mounting a cutting blade. The Nunes 355 Rotary Mower and the Lesco 500D Rotary Mower also show singled spindled cutting deck assemblies on a rotary gang mower. Thus, these rotary gang teachings will be the second box in my Single Spindle Teachings chart.

A third box will be occupied by a further US patent, namely US 4,926,621 to Torras. Thus, my Single Spindle Teachings chart will look like this:

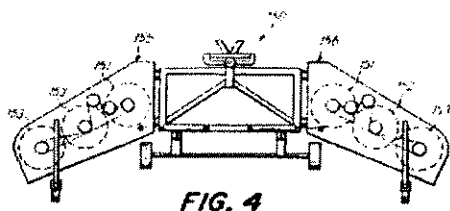
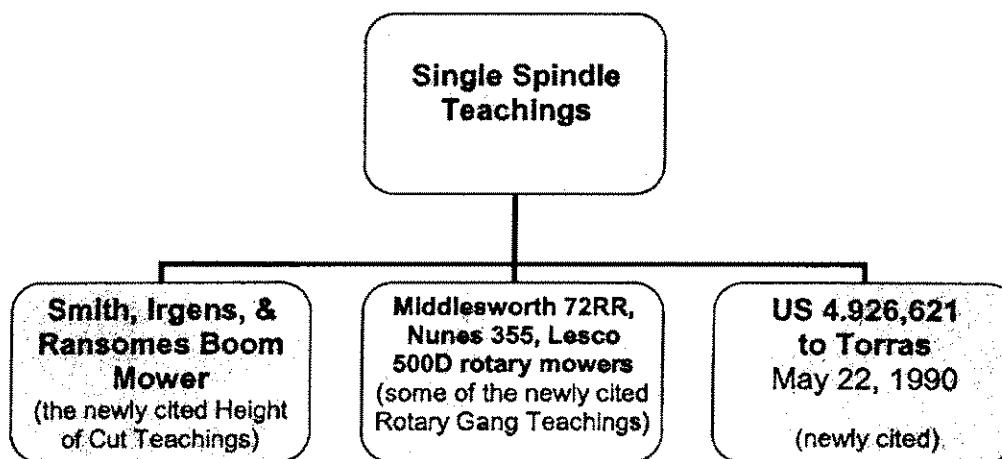


FIG. 4

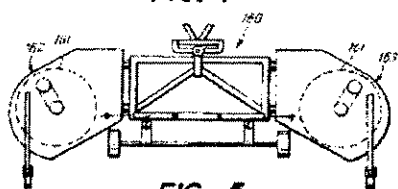


FIG. 5

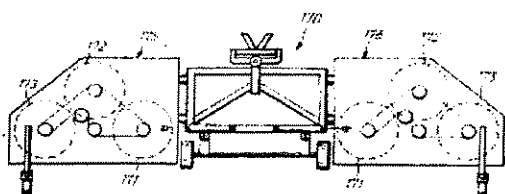


FIG. 6

Torras teaches a rotary gang type mower having a pair of front side or wing rotary cutting deck assemblies and a trailing rear cutting deck assembly. What is particularly interesting about Torras is his teaching that such side or wing cutting deck assemblies could be provided with multiple spindles each of which drives a cutting blade **or just one spindle** driving a single blade. Torras in fact depicts these alternative arrangements in Figs. 4-6 which are reproduced herein.

Carefully compare Fig. 5, the single spindled alternate of Torras, to the